

100

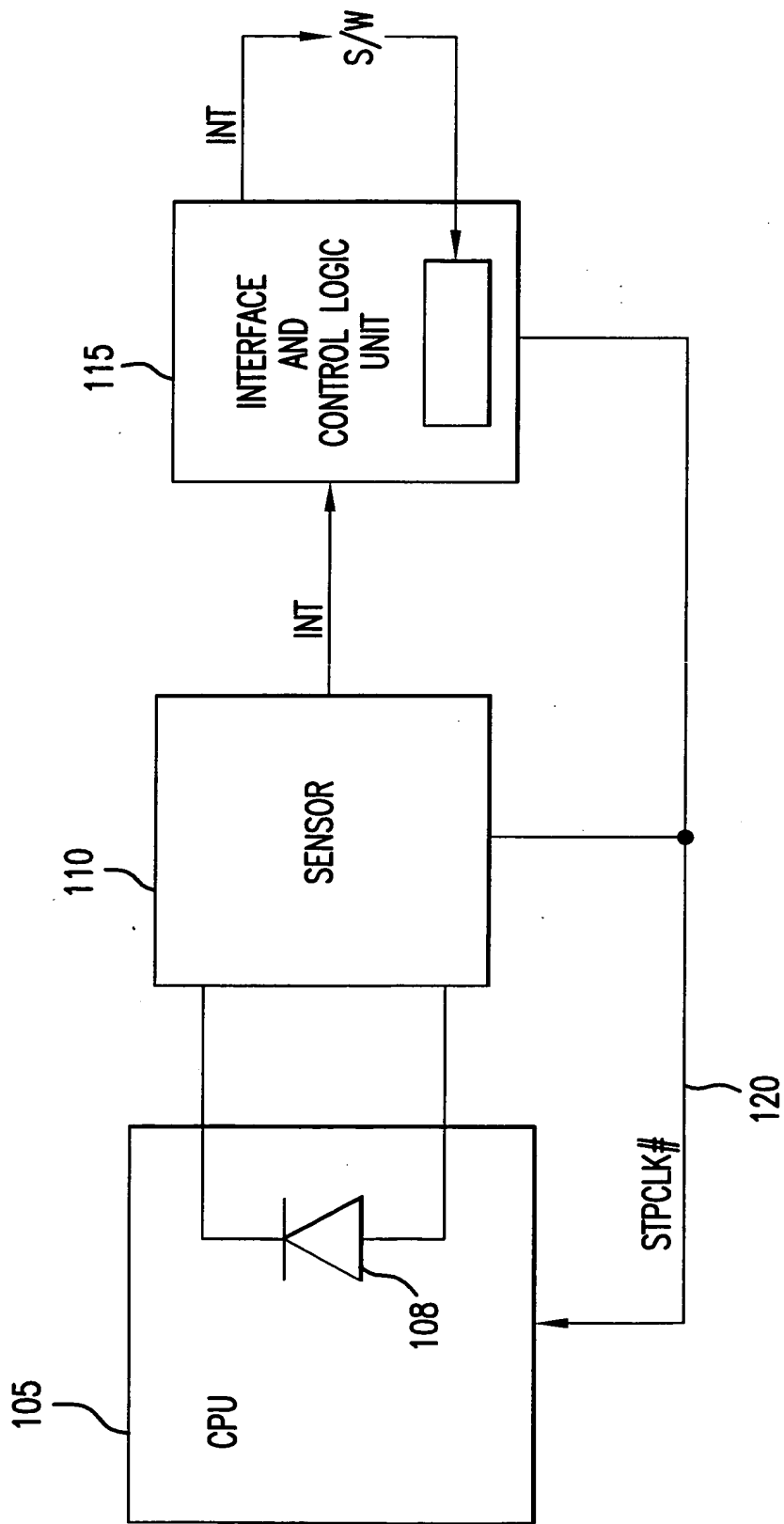


FIG.1

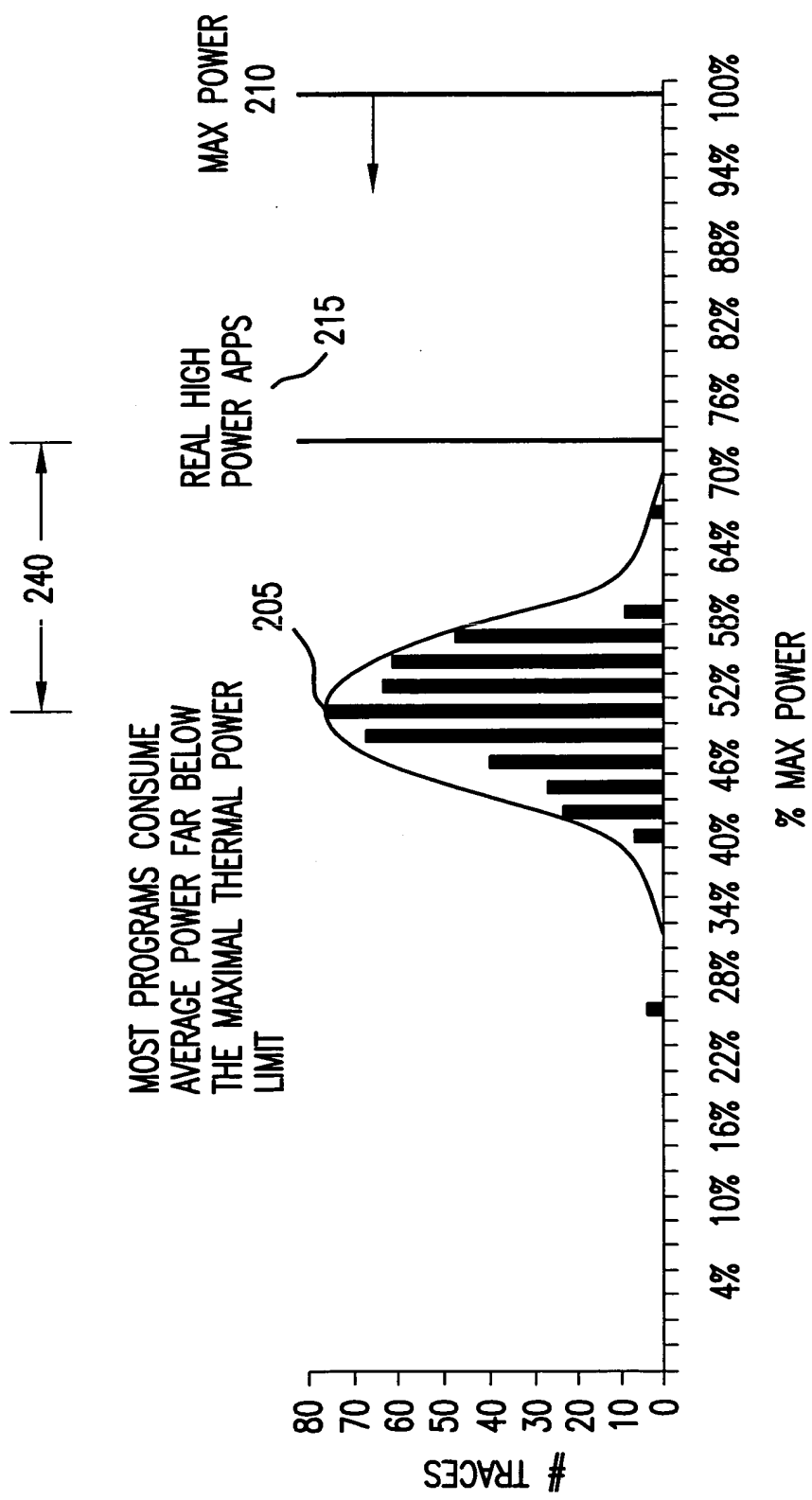


FIG.2

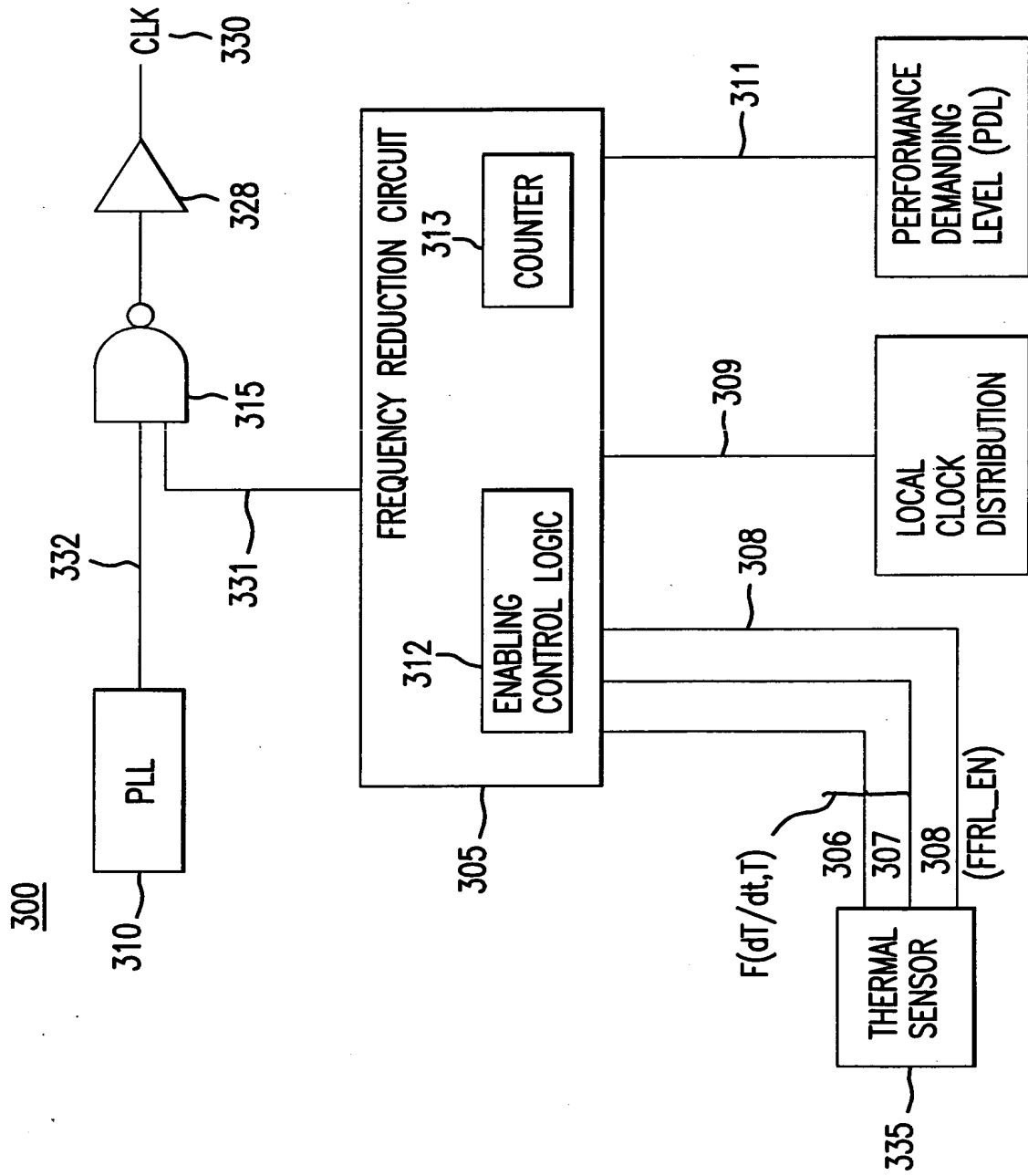
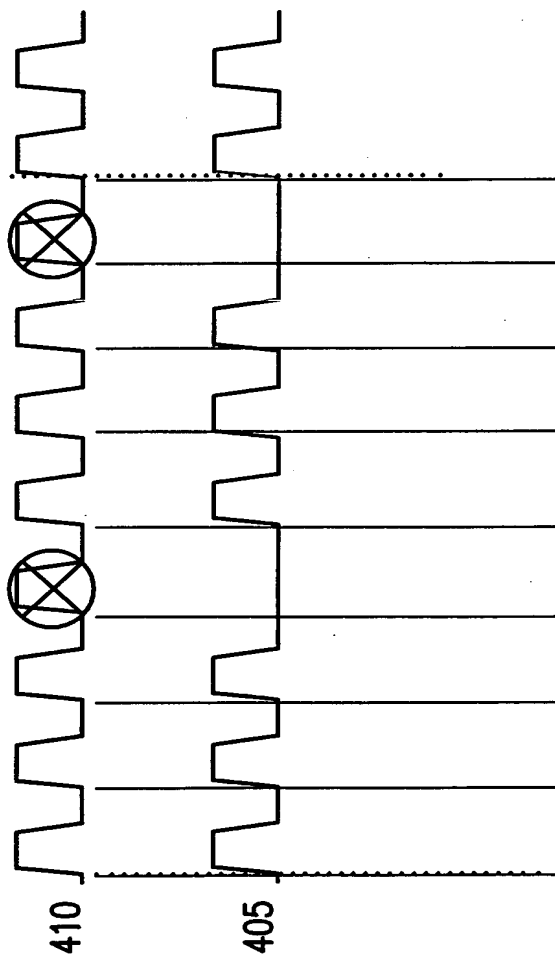


FIG.3

[illegible]

400



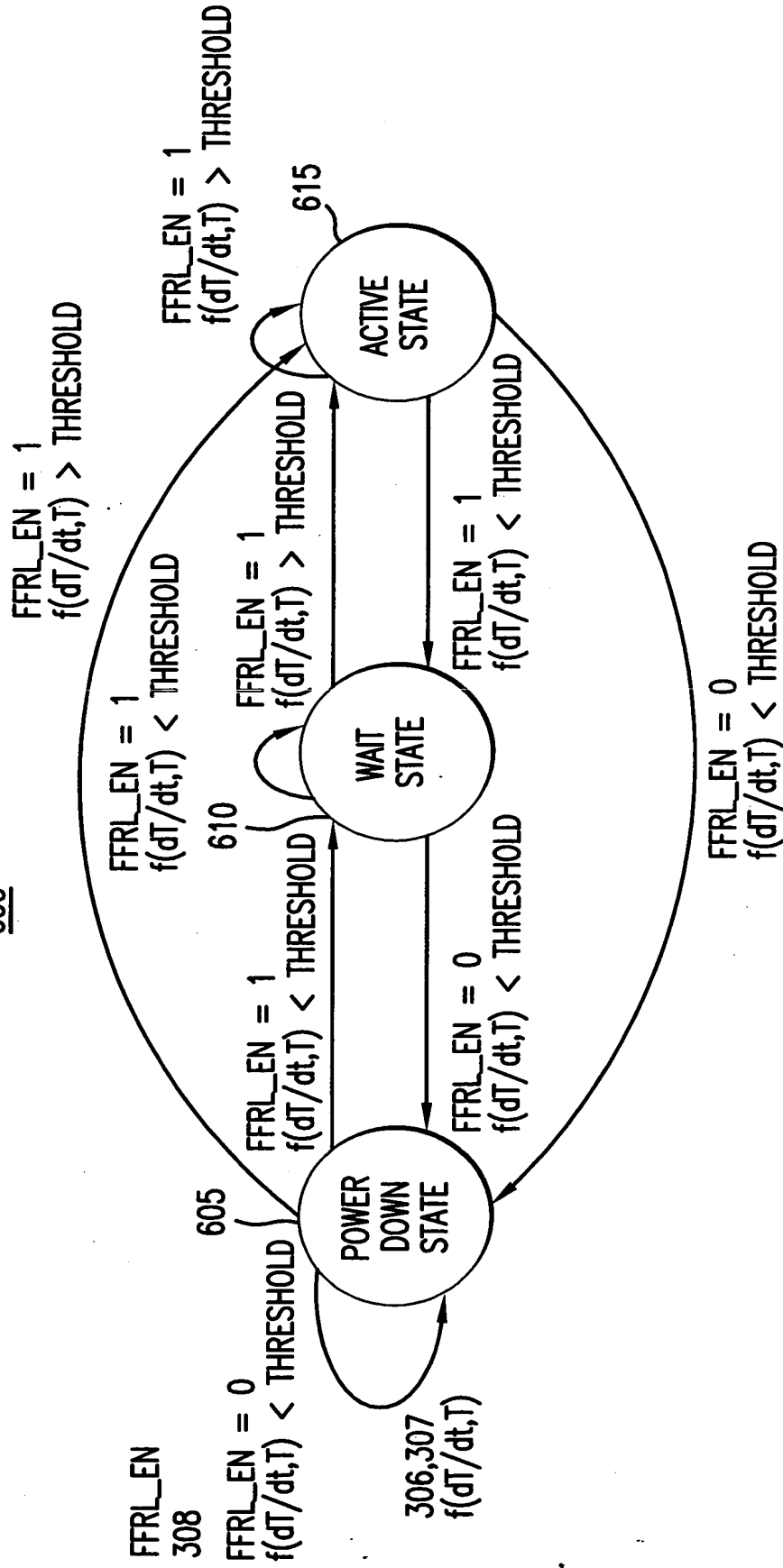
**FIG. 4**

| FFRL_EN                            | dT/dt            | THERMAL TEMPERATURE           | CURRENT LOGIC STATE | PREV. LOGIC STATE |
|------------------------------------|------------------|-------------------------------|---------------------|-------------------|
| 0 (NOT NEAR MAXIMAL THERMAL LIMIT) | NOT CARE         | NOT CARE                      | POWER DOWN          | POWER DOWN        |
| 0 (NOT NEAR MAXIMAL THERMAL LIMIT) | NOT CARE         | NOT CARE                      | POWER DOWN          | WAIT              |
| 0 (NOT NEAR MAXIMAL THERMAL LIMIT) | NOT CARE         | NOT CARE                      | POWER DOWN          | ACTIVE            |
| 1 (NEAR MAXIMAL THERMAL LIMIT)     | <0.2 (SLOW RATE) | <MAX. TEMPERATURE- $\delta t$ | POWER DOWN          | POWER DOWN        |
| 1 (NEAR MAXIMAL THERMAL LIMIT)     | >0.2 (SLOW RATE) | <MAX. TEMPERATURE- $\delta t$ | WAIT                | POWER DOWN        |
| 1 (NEAR MAXIMAL THERMAL LIMIT)     | <0.2 (SLOW RATE) | <MAX. TEMPERATURE- $\delta t$ | POWER DOWN          | WAIT              |
| 1 (NEAR MAXIMAL THERMAL LIMIT)     | >0.2 (SLOW RATE) | <MAX. TEMPERATURE- $\delta t$ | WAIT                | WAIT              |
| 1 (NEAR MAXIMAL THERMAL LIMIT)     | NOT CARE         | >MAX. TEMPERATURE- $\delta t$ | ACTIVE              | POWER DOWN        |
| 1 (NEAR MAXIMAL THERMAL LIMIT)     | NOT CARE         | >MAX. TEMPERATURE- $\delta t$ | ACTIVE              | WAIT              |
| 1 (NEAR MAXIMAL THERMAL LIMIT)     | NOT CARE         | >MAX. TEMPERATURE- $\delta t$ | ACTIVE              | ACTIVE            |

FIG.5

# LOGIC STATES DIAGRAM OF FAST FREQUENCY REDUCTION LOGIC (FFRL)

600



FFRL\_EN: FAST FREQUENCY REDUCTION LOGIC ENABLE SIGNAL; THRESHOLD: LOGIC STATE TRANSITION THRESHOLD;  
dT/dt: TEMPERATURE CHANGING RATE; T: THERMAL TEMPERATURE; f(dT/dt, T): FUNCTION OF dT/dt AND T

FIG. 6